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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/535,296
Filing Date: May 17, 2005
Appellant(s): JOHNSON ET AL.

Eli Weiss
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 09/04/2008 appealing from the Office action mailed 04/09/2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

2002/0047550	Tanada	9-2001
6,329,758	Salam	8-1999
2002/0030647	Hack et al	6-2001

6,133,054 Henson 8-1999

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1-15, 18 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanada (US 2002/0047550 A1) in view of Salam (US Patent 6,329,758).

As to **claim 1**, Tanada discloses a method of improving the output uniformity of a display, comprising the following steps:

determining the non-uniformity of an output of a driver circuit connected with the at least one pixel base on the first emitted brightness (see [0119]);

generating a calibration factor (Fig. 2C(B2)) for the at least one pixel based on the non-uniformity, to be used to modify the output of the driver circuit (Fig. 1(111)), to improve the uniformity.

However, Tanada does not teach detecting a first emitted brightness of at least one pixel of the display device via an external detection system that is substantially independent of the display device.

Salam discloses a LED matrix display, wherein teaches an external detection system that is substantially independent of the display device (see Salam Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize external detection system as in Salam with the method of improving the output uniformity of Tanada, because this would result with a low-cost matrix drive system and free from the dynamic effects (see Salam Col. 2 lines 6-19).

As to **claim 2**, Tanada and Salam disclose a method of claim 1, wherein said display device is a self light emitting display device (see Tanada title).

As to **claim 3**, Tanada and Salam disclose a method of claim 1 or 2, wherein the display device is an organic light emitting diode based display device (see Tanada Fig. 7B(5035) and [0164]).

As to **claim 4**, Tanada and Salam disclose a method of claim 1, including:

adjusting an average display brightness (see Tanada [0106], standard brightness), detecting a second emitted brightness of the at least one pixel (Fig. 1(101B)), and

generating the calibration factor based on the first and second detected brightnesses (see Tanada [0106]-[0107]).

As to **claim 5**, Tanada and Salam disclose a method of claims 1, wherein the external detection system includes an external imaging system (see Salam Fig. 1(21-23)).

As to **claim 6**, Tanada and Salam disclose a method of claims 1, wherein the driver circuit is one of a pixel driver circuit or a data driver circuit (see Tanada Fig. 4A(403)).

As to **claim 7**, Tanada and Salam disclose a method of claims 1, wherein the display device is an active matrix polymer (see Tanada Fig. 5A-5C, show an example of a process of producing an active matrix self light emitting device) or organic light emitting diode display device (see Tanada Fig. 7B(5035) see [0164]).

As to **claim 8**, Tanada and Salam disclose a method of claim 7, wherein detecting the emitted brightness of at least one pixel individually detecting the emitted brightness for each of a plurality of pixels (see Tanada [0130], brightness detection in each pixel is discussed).

As to **claim 9**, Tanada and Salam disclose a method of claim 7, includes aligning, in one of a column or a row of pixels, all transistors of all pixels in a direction of a laser beam during a laser recrystallisation during the fabrication of the transistors (see Tanada [0163] YAG laser is used).

As to **claim 10**, Tanada and Salam disclose a method of claims 1, wherein the display device is a passive matrix polymer or organic light emitting diode display device (see Tanada Fig. 7B(5035) and [0164]).

As to **claim 11**, Tanada and Salam disclose a method of claims 1, wherein detecting the emitted brightness of at least one pixel includes jointly measuring the emitted brightness of a group of pixels (see Tanada [0120]), commonly controlled by a common driving device (Fig. 2A(Gate Signal Line)).

As to **claim 12**, Tanada and Salam disclose a method of claim 1, including storing the calibration factors in a memory device (see Tanada Fig. 1(104)) associated with the driver device circuit.

As to **claim 13**, Tanada discloses a system comprising:

a unit (Fig. 11A(3301)) for holding a display device to be calibrated,

a feedback system that is configured to communicated information based on the emitted brightness to the display device to facilitate improvement of output brightness

uniformity by adjustment of one or more drivers of the display device (see Fig. 1, driver 111 is fed to memory circuit 100 then to correction circuit. Back to display).

However, Tanada does not teach a detection system that is substantially independent of display device and configured to detect emitted brightness from the entire display device surface of the display device.

Salam discloses a LED matrix display, wherein teaches an external detection system that is substantially independent of the display device (see Salam Fig 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize external detection system as in Salam with the method of improving the output uniformity of Tanada, because this would result with a low-cost matrix drive system and free from the dynamic effects (see Salam Col. 2 lines 6-19).

As to **claim 14**, Tanada and Salam disclose a system according to claim 13, wherein the display device is a self light emitting display device (see Tanada Fig. 7B(5035) see [0164]).

As to **claim 15**, Tanada discloses a display device that is configured to receive information based on an emitted brightness of one or more pixels of the display device (see Fig. 1, driver 111 is fed to memory circuit 100 then to correction circuit. Back to display).

However, Tanada does not teach receiving information from an external detector that is independent of the display device, and includes at least one component of at least one driver that is adjusted based on the information to improve an output brightness uniformity of the display device.

Salam discloses a LED matrix display, wherein teaches an external detection system that is substantially independent of the display device (see Salam Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize external detection system as in Salam with the method of improving the output uniformity of Tanada, because this would result with a low-cost matrix drive system and free from the dynamic effects (see Salam Col. 2 lines 6-19).

As to **claim 18**, Tanada and Salam disclose a method of claim 1, including laser trimming of one or more transistors associated with the driver circuit (See Tanada [0137],[0157],[0163]).

As to **claim 20**, Tanada and Salam disclose a display device of claim 15, wherein the at least one component includes one or more transistors that are laser trimmed based on the information (See Tanada [0137],[0157],[0163]).

2. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanada and Salam in further view of Hack et al (US 2002/0030647 A1).

As to **claim 16**, Tanada and Salam disclose display device as defined in claim 15, wherein the display device comprises a plurality of light emitting pixels being arranged in a row and column structure, wherein either each column or each row of pixels is connected with a data driver circuit (see Tanada Fig. 4A, 4B).

However, Tanada and Salam do not teach each column or row includes a current measurement device, and a controller that is configured to adjust an output of the data driver circuit based on a relative change over time of current detected by the current measurement device.

Hack discloses a uniform active matrix OLED display wherein teaches an additional non-light emitting circuitry component (Fig. 7(500)), incorporating a current sensor circuit (Fig. 8(70)).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize a current sensing device of Hack into self light emitting display device of Tanada and Salam, because the brightness of a light emitting device is directly related to the supplying current. In order to produce a proper brightness on a pixel by pixel basis throughout the lifetime of the display, a current sensor circuit allows monitoring current-voltage characteristics of the pixels (see Hack [0016]).

3. Claims 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanada and Salam in further view of Henson (US Patent 6,133,054).

As to **claims 17 and 19**, Tanada and Salam disclose a method of claims 1 and 15 respectively.

However, Tanada and Salam do not teach component including burning fuses on a circuit associated with the driver circuit.

Henson discloses a method for testing an integrated circuit wherein teaches fuse structures (Fig. 3, 4, 5 (106)) which enable integrated circuit to be tested.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize a method of burning fuses as in Henson, into self light emitting display device of Tanada and Salam, because this method reduces the risk of unnecessarily rejects and increases the reliability of integrated circuit (see Henson Col. 6 lines 28-54).

(10) Response to Argument

1. With respect to rejection under 35 U.S.C. 103(a) as being unpatentable over Tanada in view of Salam to claims 1-15, 18 and 20, in Office Action dated 04/09/2008.

2. Appellant's argument regarding limitation: "the charge on the capacitor determines the brightness of the pixel. Therefore to change the brightness of the pixel, the charge on the capacitor is changed." was not taught by the cited references. See page 7, second paragraph.

3. However, examiner finds that appellant's argument is not persuasive, because this limitation was neither described in any of claims, nor it's inherent and it's unnecessary to be in the claims. Indeed, there are other ways to determine the brightness of the pixel beside the charge on the capacitor, and there are other ways to change the brightness of the pixel as well.

4. Therefore, appellant's arguments with respect to rejection to claim 1-15, 18 and 20, are not being addressed in this Office Action, due to the subject matter is not in the claims.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/YUK CHOW/

Examiner, Art Unit 2629

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/Amare Mengistu/

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